

1. A signal coupler for inductively coupling audio signals present on leads to a coil in a hearing aid, comprising:
  - a handset having a receiver section where a speaker responds to audio signals on the leads to produce acoustic signals destined for the hearing aid mounted to a listener's ear placed against an outer surface of a wall of the receiver section; and
  - a coupler coil placed inside the receiver section and in electrical connection with the audio signals to generate an audio electromagnetic field in response to said audio signals, with said electromagnetic field being inductively coupled through said wall of the receiver section of the handset to said coil inside the hearing aid to enhance communication with a hearing impaired listener.
2. The coupler device as claimed in claim 1 wherein said coupler coil is placed in series connection with said speaker in the receiver section.
3. The coupler device as claimed in claim 2 and further including a capacitor in series connection with said coupler coil, said capacitor and coupler coil forming a filter for enhanced inductive coupling with said coil of the hearing aid.
4. The coupler device as claimed in claim 1 wherein said coupler coil has a metallic core.
5. The coupler device as claimed in claim 1 wherein said coupler coil has a ferromagnetic core.
6. The coupler device as claimed in claim 5 wherein said coupler coil core is formed of a rare earth iron material.

7. The coupler device as claimed in claim 5 wherein said coupler coil has a toroidal shape.
8. The coupler device as claimed in claim in claim 7 wherein said ferromagnetic core has an oval cross-section and is oriented inside said receiver section of the handset so as to increase magnetic flux lines towards the coil inside the hearing aid.
9. The coupler device as claimed in claim 1 wherein said coupler coil is formed with a plurality of turns of a rectangular wire.
10. The coupler device as claimed in claim 9 and further including a capacitor in series connection with said coupler coil, said capacitor and coupler coil forming a filter for enhanced inductive coupling of audio signals from said leads to said hearing aid coil.
11. The coupler device as claimed in claim 10 wherein the capacitor and coupler coil form a filter that excludes low and high audio frequencies.
12. The coupler device as claimed in claim 1 wherein said receiver section of the handset has a carrier disc located adjacent said wall; and wherein said coupler coil is mounted on said carrier disc.
13. The coupler device as claimed in claim 12 wherein said handset has a circuit board with circuitry to provide audio signals on output leads connected to said speaker; and wherein said speaker is oriented to project acoustic audio through said disc.

14. A coupler device for coupling an audio signal within a handset to a hearing aid having a T-coil for receiving inductively transmitted audio, comprising:

a coil wound around a magnetic core and a capacitor coupled together in series, said capacitor and coil being coupled to a speaker in the handset and physically mounted within said handset.

15. The coupler device as claimed in claim 14, wherein said series connected capacitor and coil are connected in series with said speaker.

16. A coupler device for a handset comprising:

a coil and a coil core around which the coil is wound, said coil and coil core being formed to mount inside a receiver section of a handset for connection to a speaker so as to provide an inductive field that can be coupled through the handset to a coil inside a hearing aid.

17. The coupler device as claimed in claim 16 and further including a capacitor connected in series with said coil.

18. The coupler device as claimed in claim 17 wherein said core is formed of a ferrite material.

19. The coupler device as claimed in claim 17 wherein said core is a toroid.

20. The coupler device as claimed in claim 17 wherein said core is formed of a ferromagnetic material.

21. The coupler device as claimed in claim in claim 16 wherein said core is air.

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22. The coupler device as claimed in claim 21 and further including a capacitor connected in series with the coil.

23. A coupler device for a handset comprising:

a coil and a coil core around which the coil is wound, said coil and coil core being formed to mount inside a receiver section of a handset for connection to a speaker so as to provide an inductive field that can be coupled through the handset to a coil inside a hearing aid;

a capacitor connected in series with said coil;

said coil, coil core and capacitor being encapsulated within a material selected to enable an inductive field generated by the coil at audio frequencies to pass there-through.

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